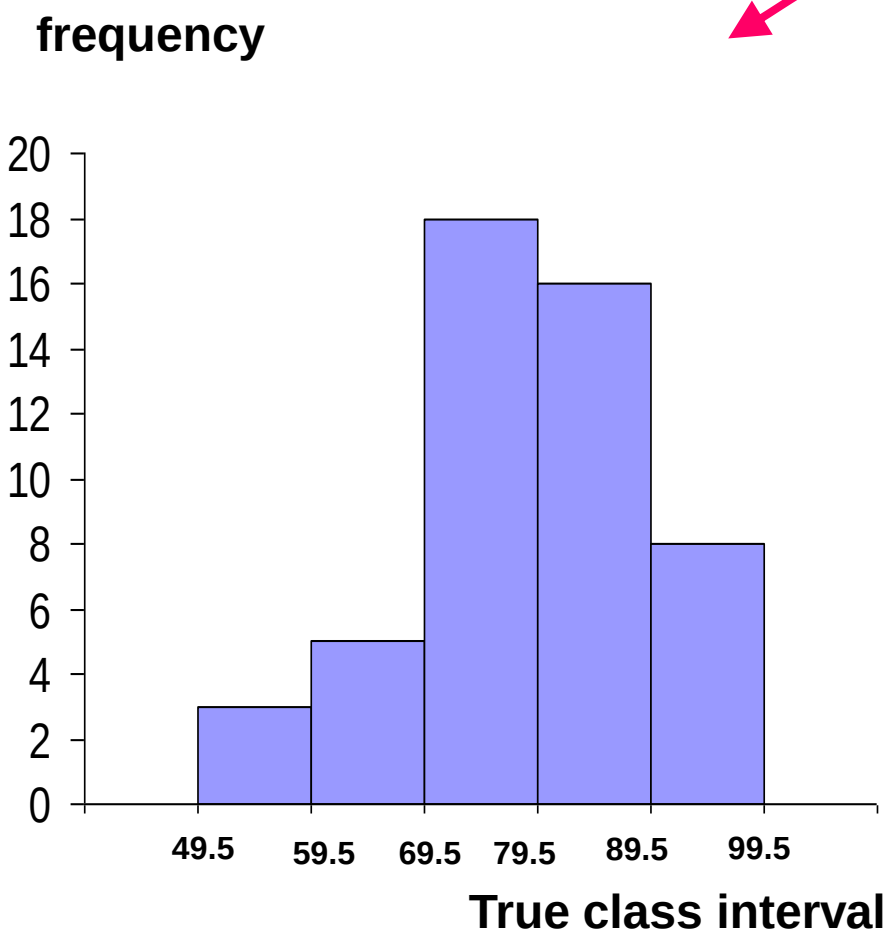
Descriptive Statistics



True class interval	frequency
49.5-59.5	3
59.5-69.5	5
69.5-79.5	18
79.5-89.5	16
89.5-99.5	8
total	50

We will learn in this lecture:

- **A frequency histogram**
- **A frequency polygon**
- **A frequency curve**
- **A steam -and –leaf plot**
- **A bar chart**
- **A line chart**
- **A pie chart**

Second Lecture

Data representation

Representation of Quantitative Data

A Frequency Histogram

A Frequency Polygon

A frequency curve

A steam -and –leaf plot

Example (1):
The following data represent the marks of 50 students in a course:

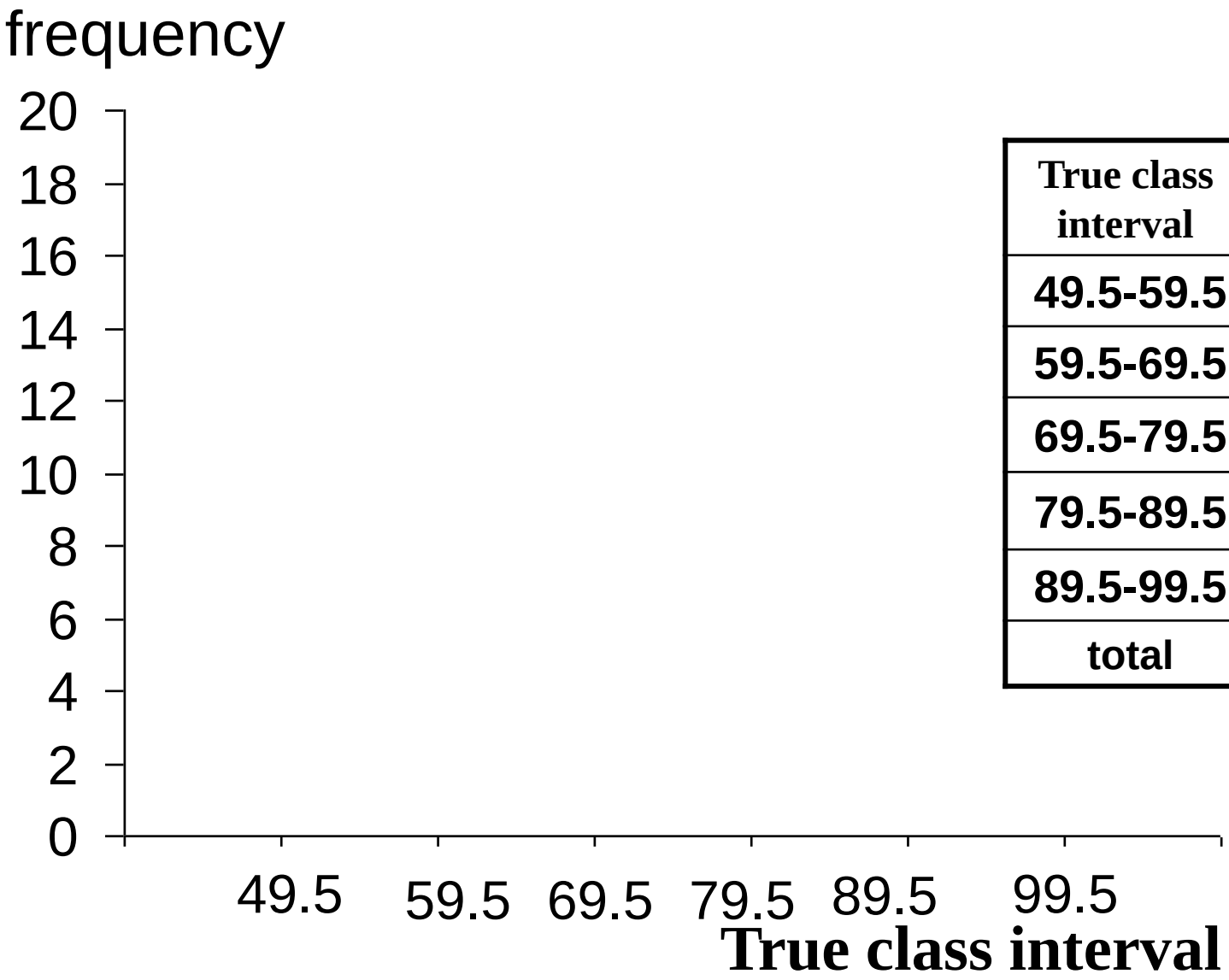
51	95	70	74	73	90	71	74	90	67
91	72	83	89	50	80	72	84	85	69
62	82	87	76	91	76	87	75	78	79
71	96	81	88	64	82	73	57	86	70
80	81	75	85	74	90	83	66	77	91

Table (1):frequency table

Class Interval	frequency
50-59	3
60-69	5
70-79	18
80-89	16
90-99	8
total	50

First:

A Frequency Histogram



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79.5-89.5	16
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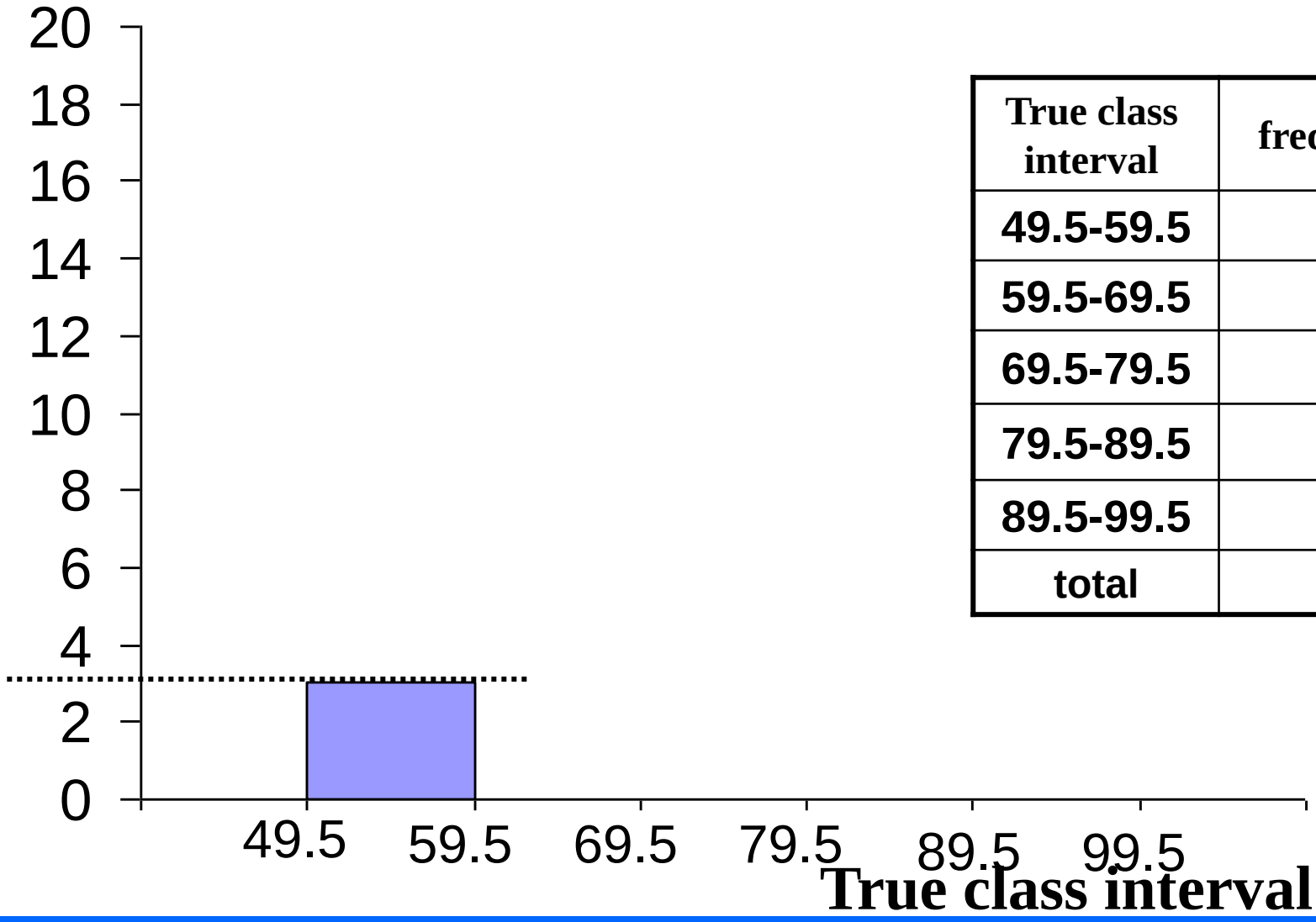
frequency



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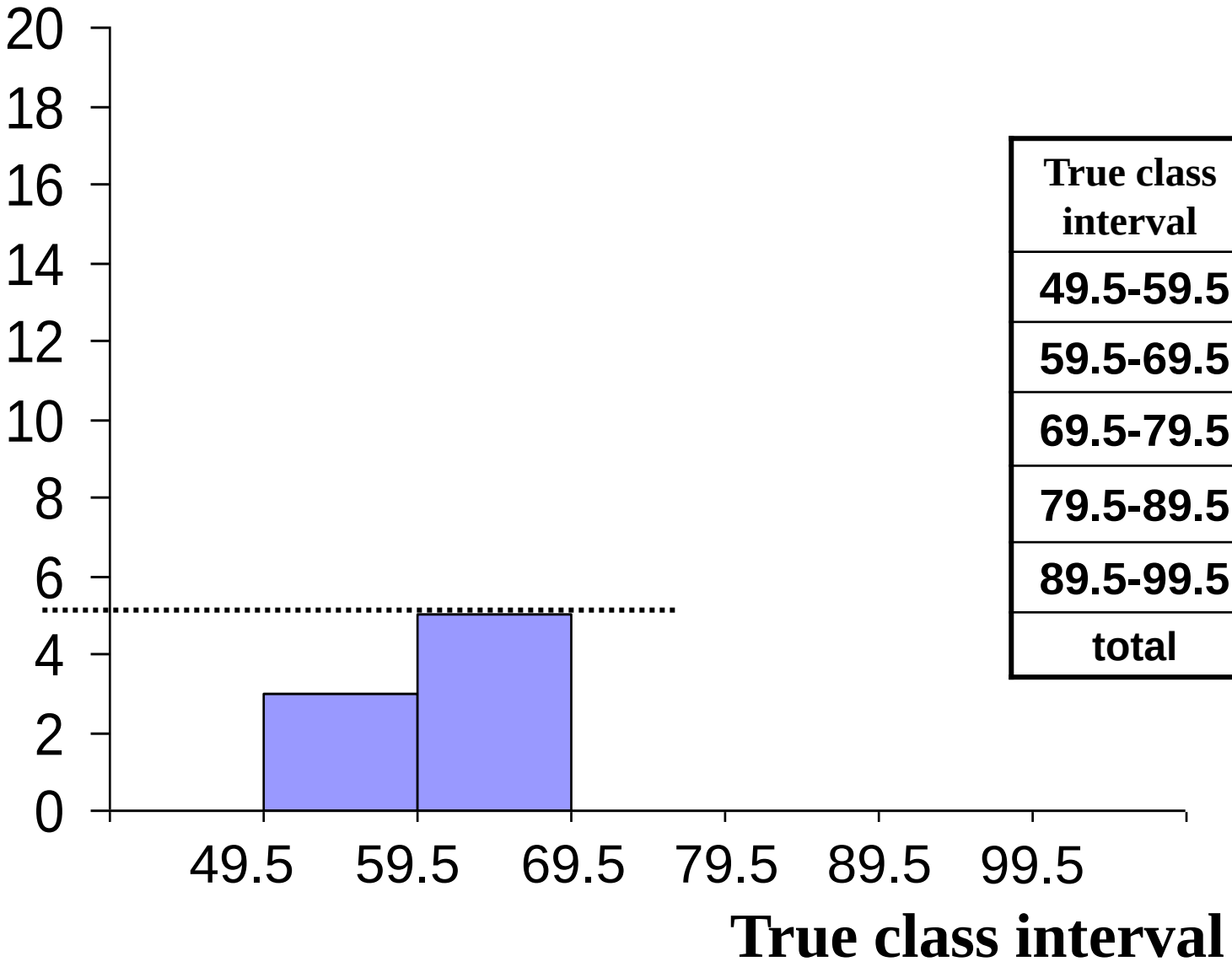

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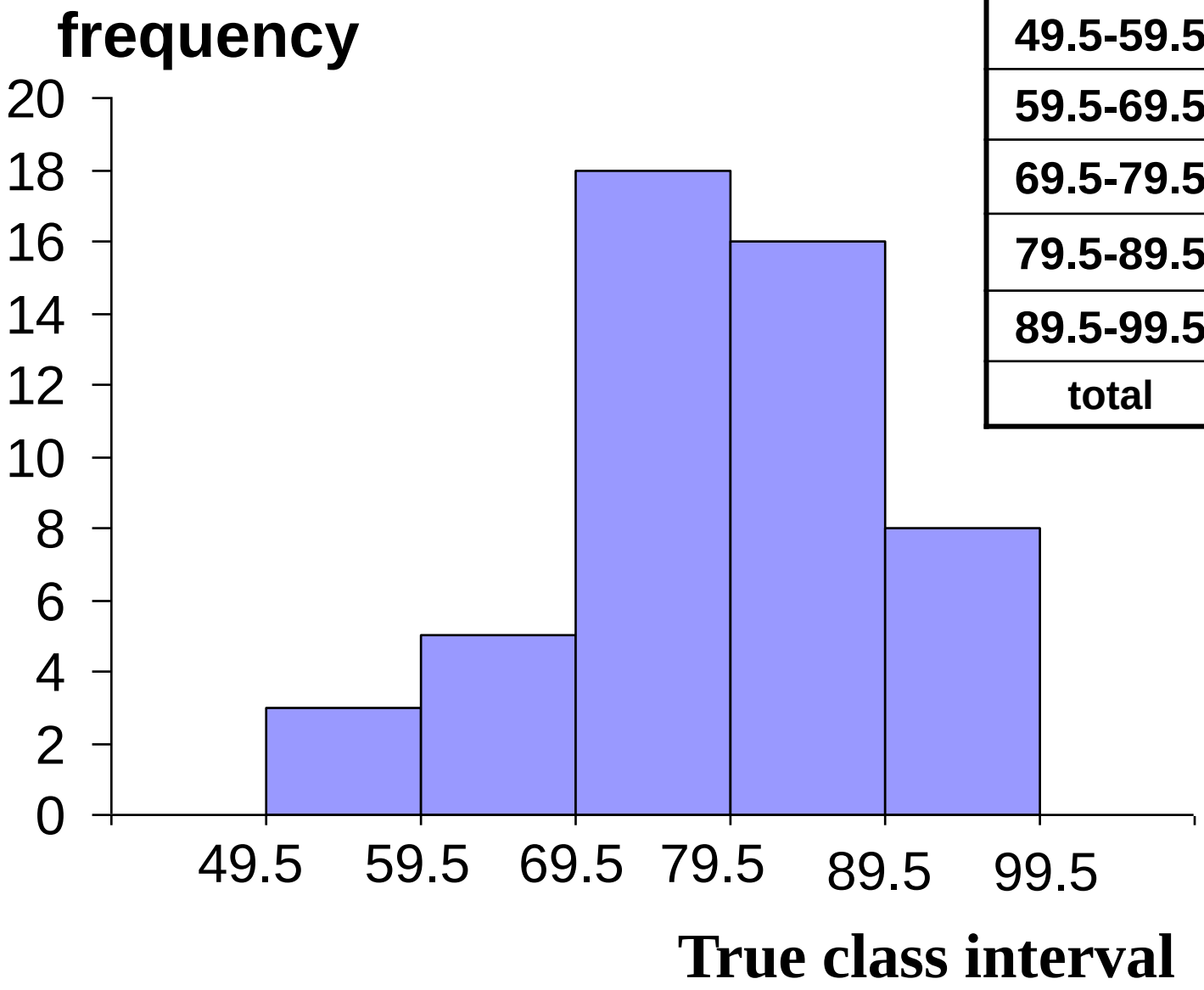
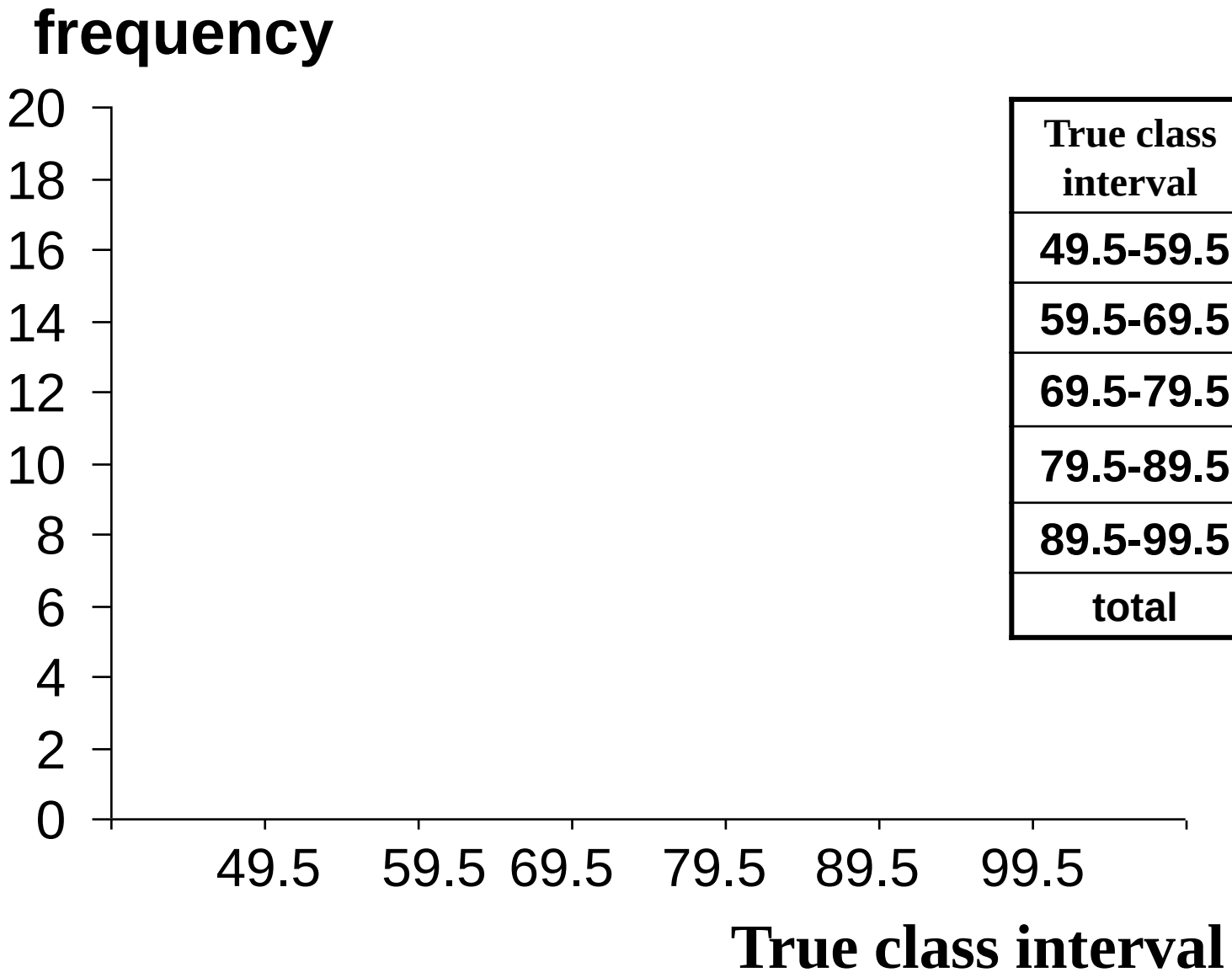


Secondly:

A Frequency Polygon



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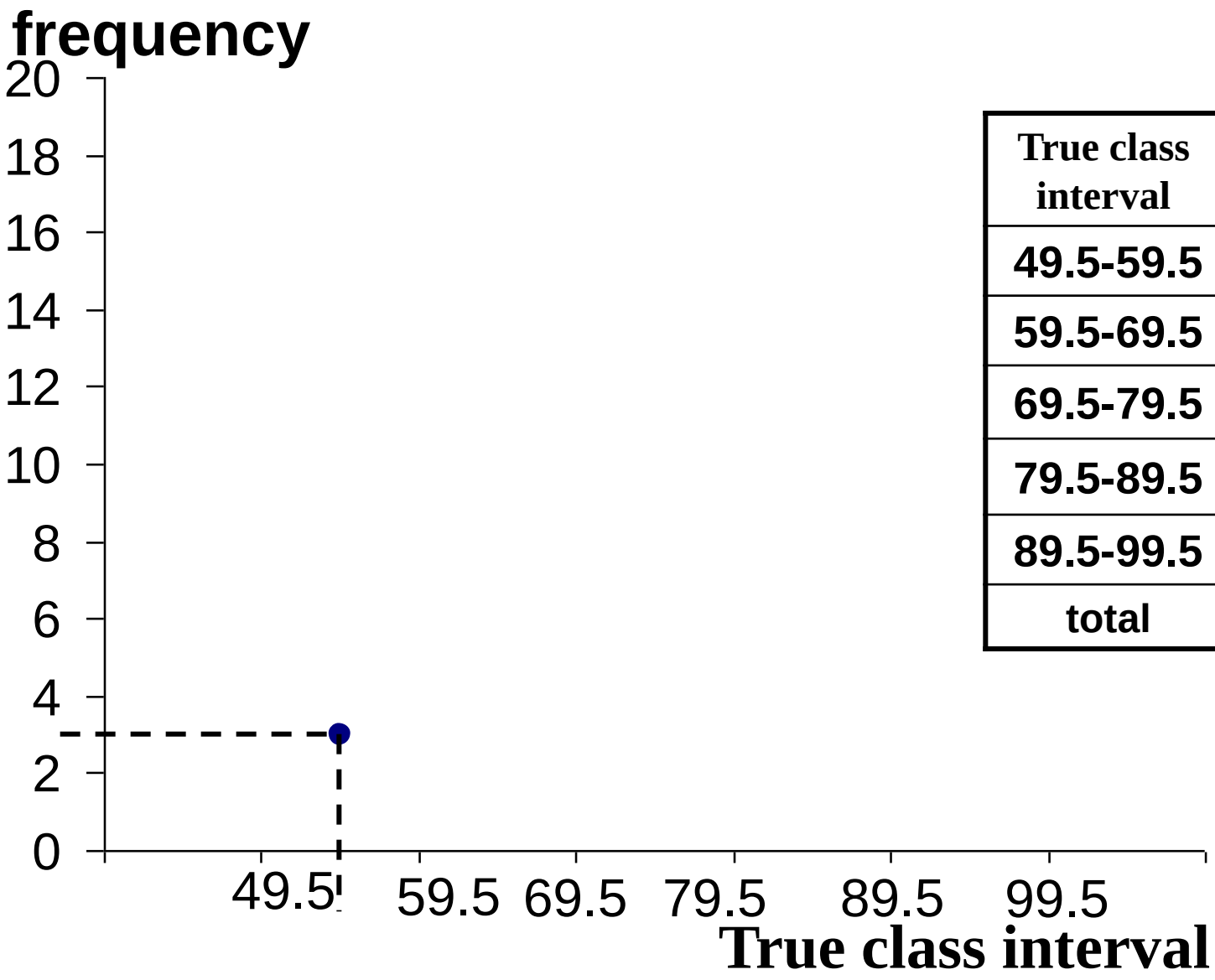
total	50



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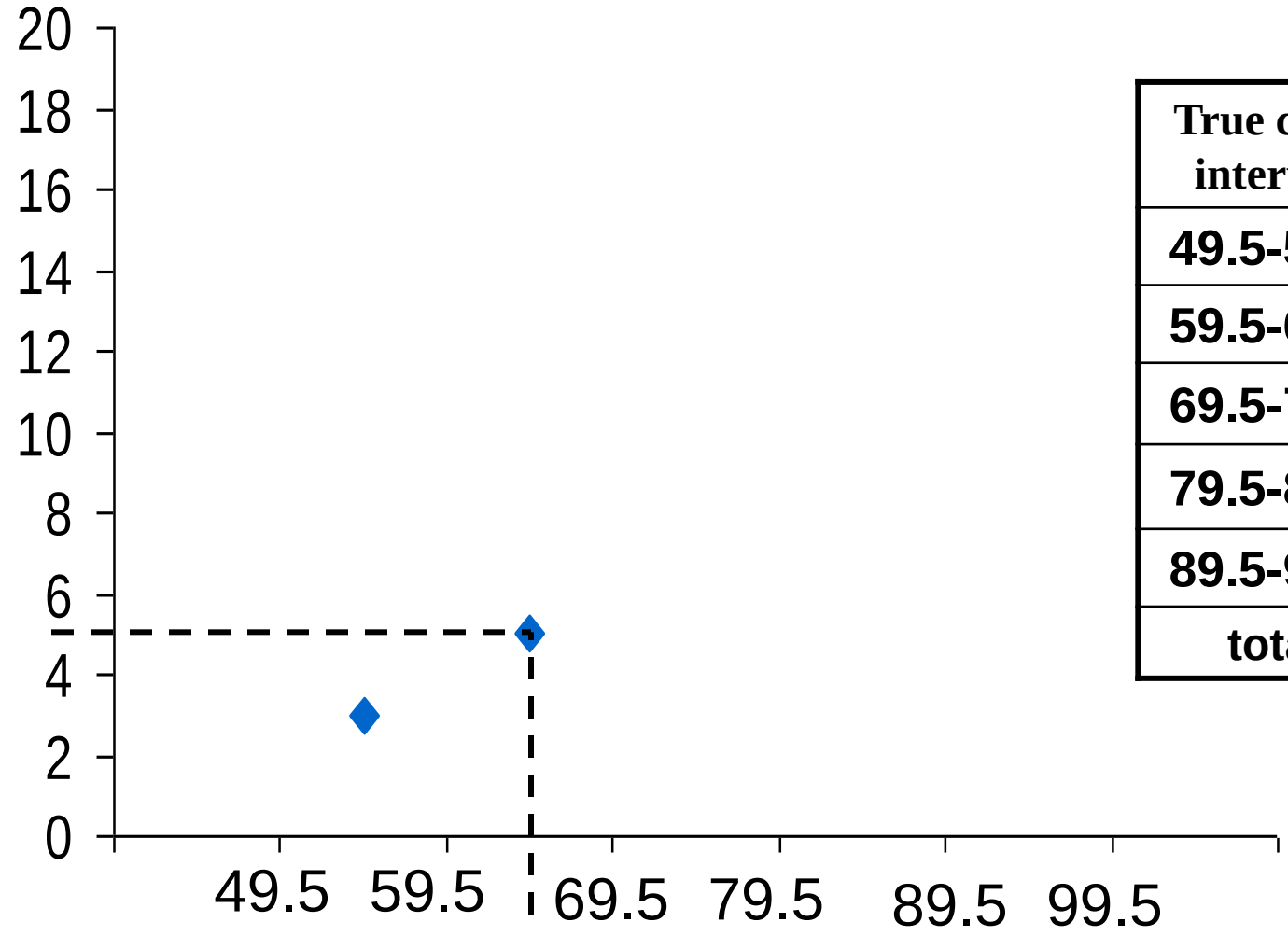

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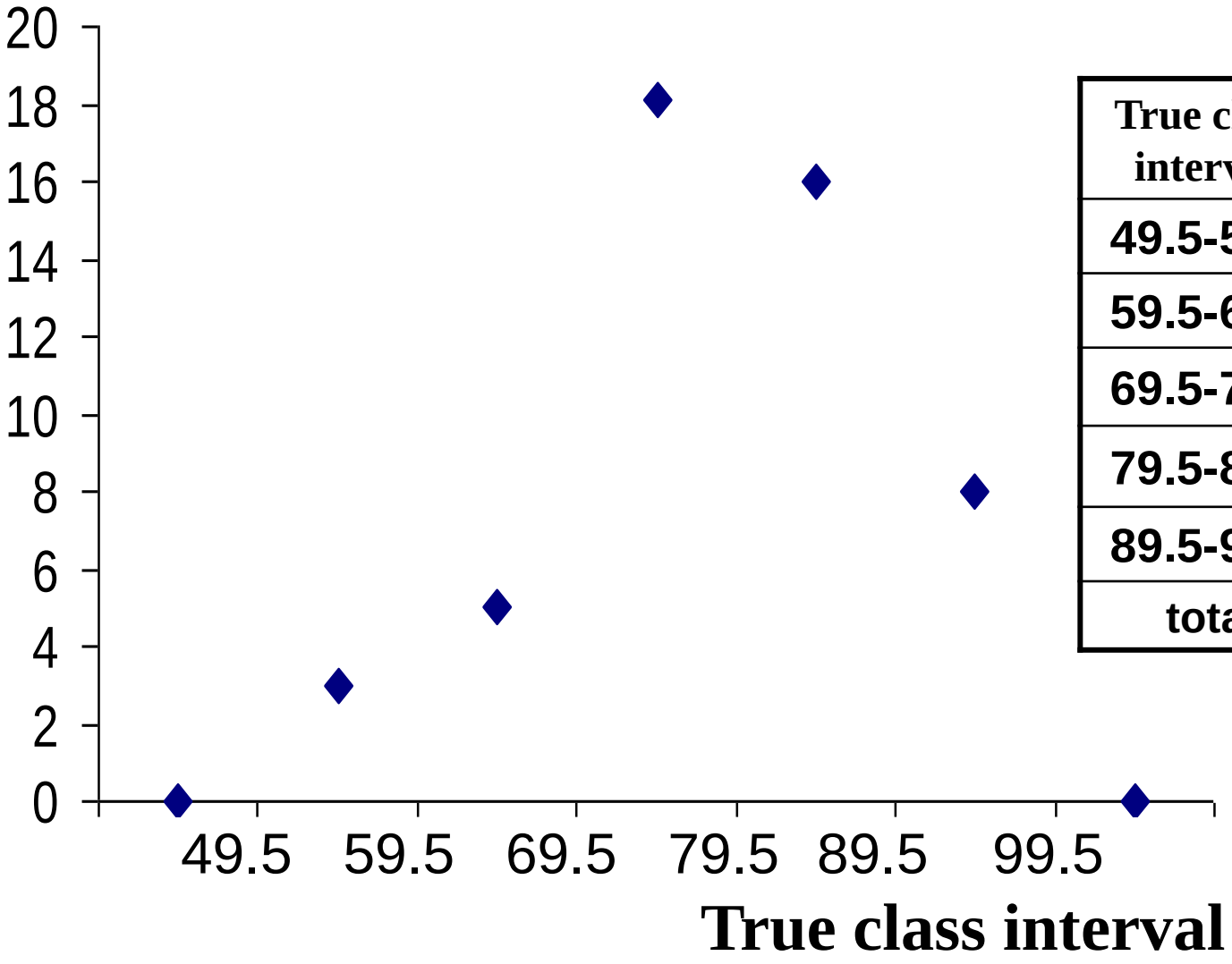

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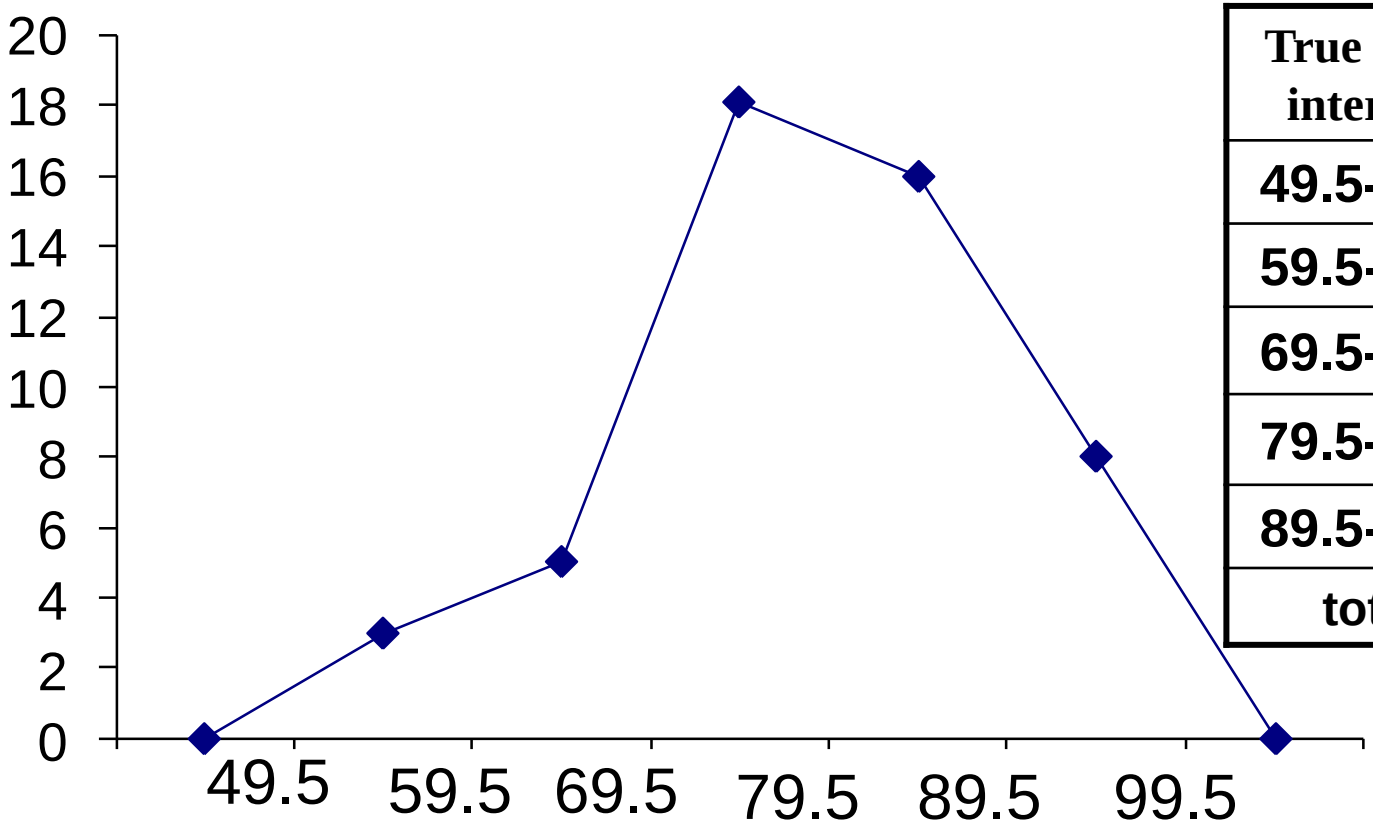
frequency



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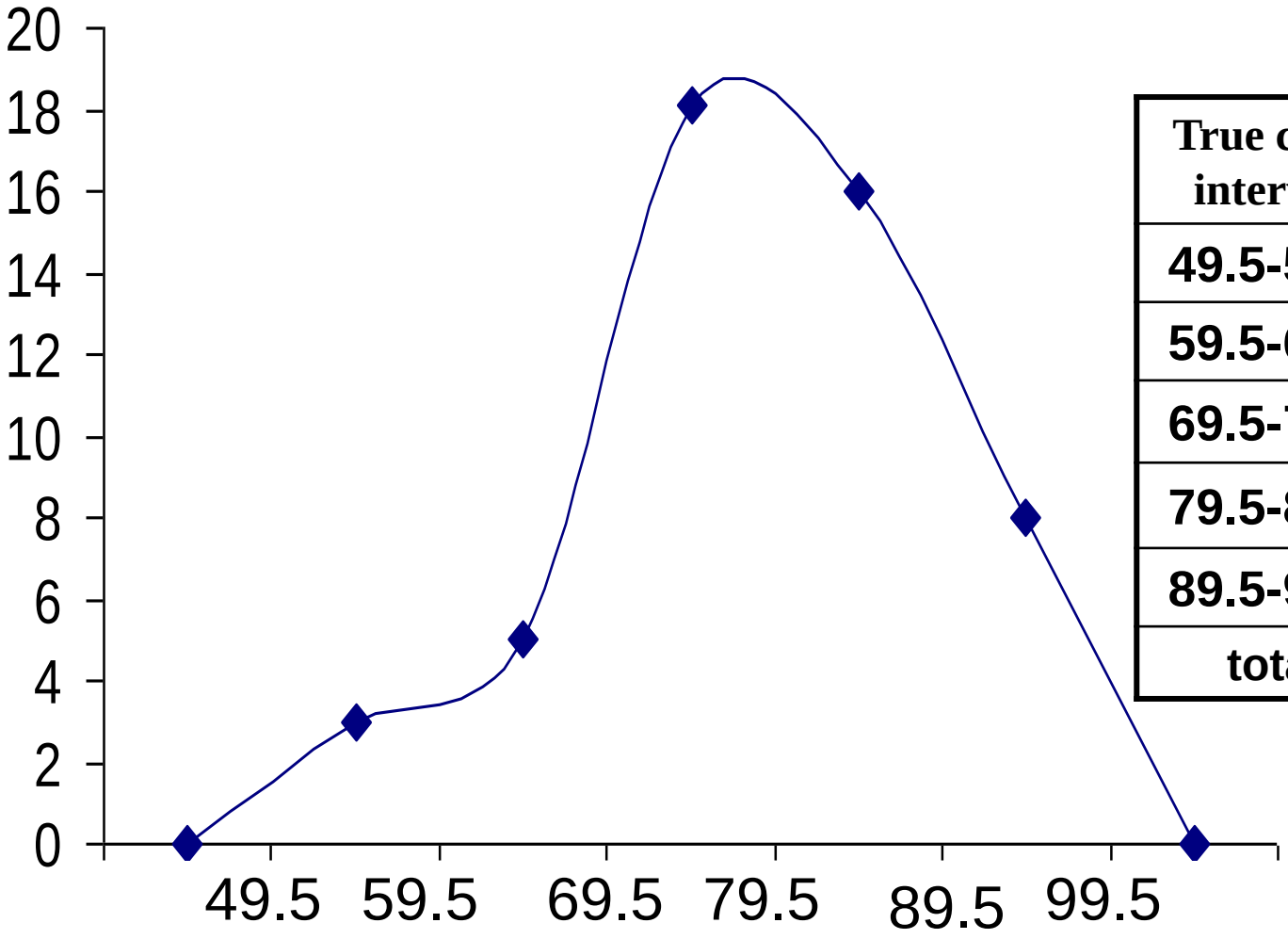
79.5-89.5	16
89.5-99.5	8
total	50

True class interval

thirdly

A Frequency Curve

frequency



True class interval	frequency
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59.5-69.5	5
69.5-79.5	18
79.5-89.5	16
89.5-99.5	8
total	50

True class interval

A Steam-And-Leaf Plot

A Steam-And-Leaf Plot

Example(2):
The following data represent students' marks in Statistics course:

28	46	49	42	58	59	53
50	51	66	62	64	67	69
63	68	67	69	75	70	78
75	74	84	85	88	93	99

28	46	49	42	58	59	53
50	51	66	62	64	67	69
63	68	67	69	75	70	78
75	74	84	85	88	93	99

2	8
3	
4	6 9 2
5	8 9 3 0 1
6	6 2 4 7 9 3 8 7 9
7	5 0 8 5 4
8	4 5 8
9	3 9

2	8
3	
4	6 9 2
5	8 9 3 0 1
6	6 2 4 7 9 3 8 7 9
7	5 0 8 5 4
8	4 5 8
9	3 9

Example(3):
Display the data in a steam-and-leaf plot.

35.4	36.8	32.9	38.9	37.5	37.5	36.7	36.4	37.9	38.6
32.9	33.4	37.2	32.9	32.0	32.2	34.2	35.7	35.7	35.7
34.4	36.1	35.8	34.5	36.7	38.0	38.7	34.6	32.1	37.2

35.4	36.8	32.9	38.9	37.5	37.5	36.7	36.4	37.9	38.6
32.9	33.4	37.2	32.9	32.0	32.2	34.2	35.7	35.7	35.7
34.4	36.1	35.8	34.5	36.7	38.0	38.7	34.6	32.1	37.2

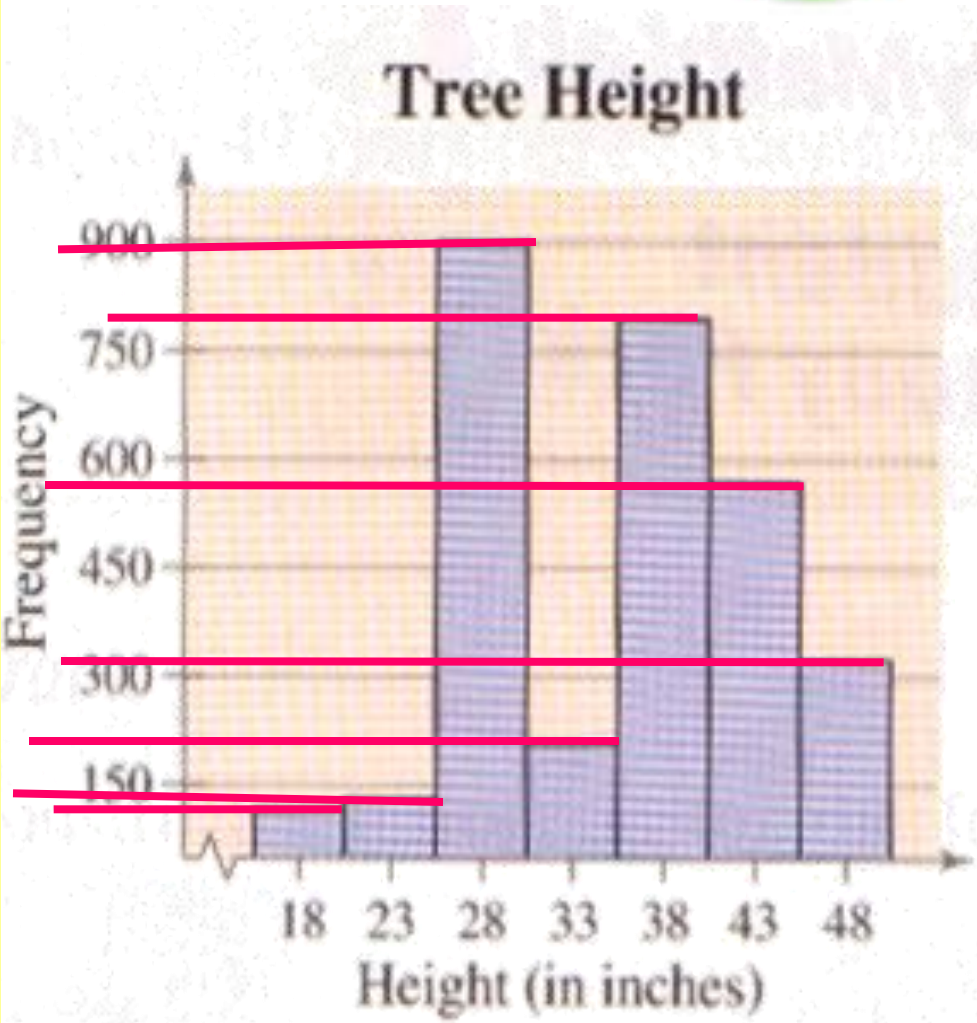
32	9 9 9 0 2 1
33	4
34	2 4 5 6
35	4 7 7 7 8
36	8 7 4 1 7
37	5 5 9 2 2
38	9 6 0 7

32	0 1 2 9 9 9
33	2 4
34	2 4 5 6
35	4 7 7 7 8
36	1 4 7 7 8
37	2 2 5 5 9
38	0 6 7 9

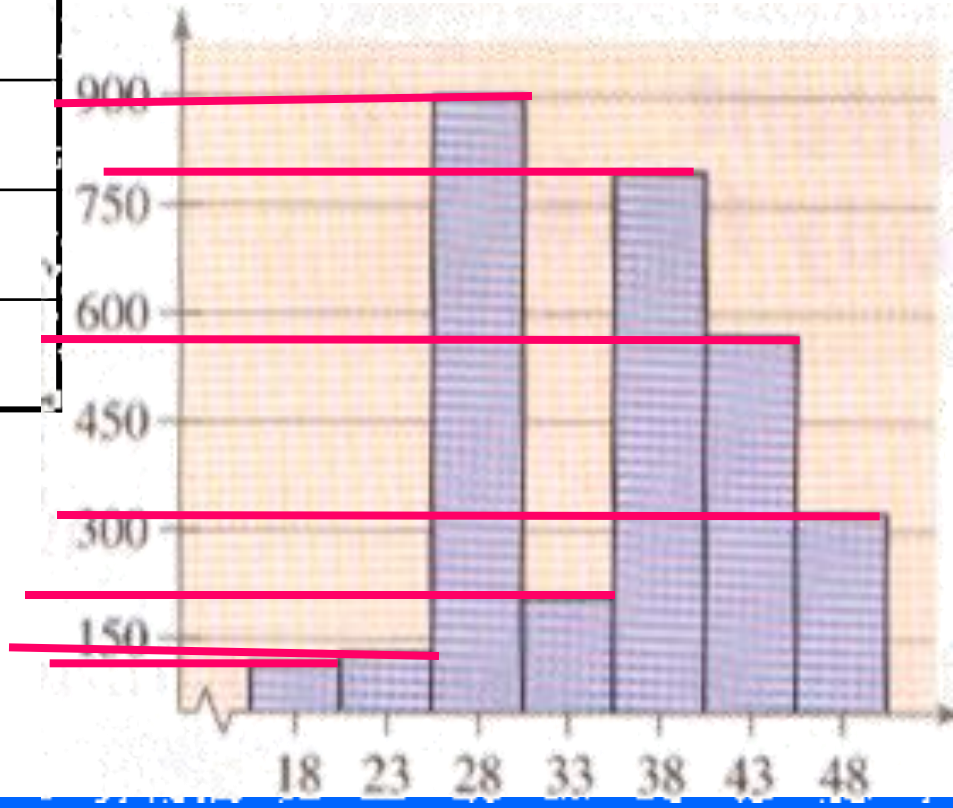
Examples

Example(4):

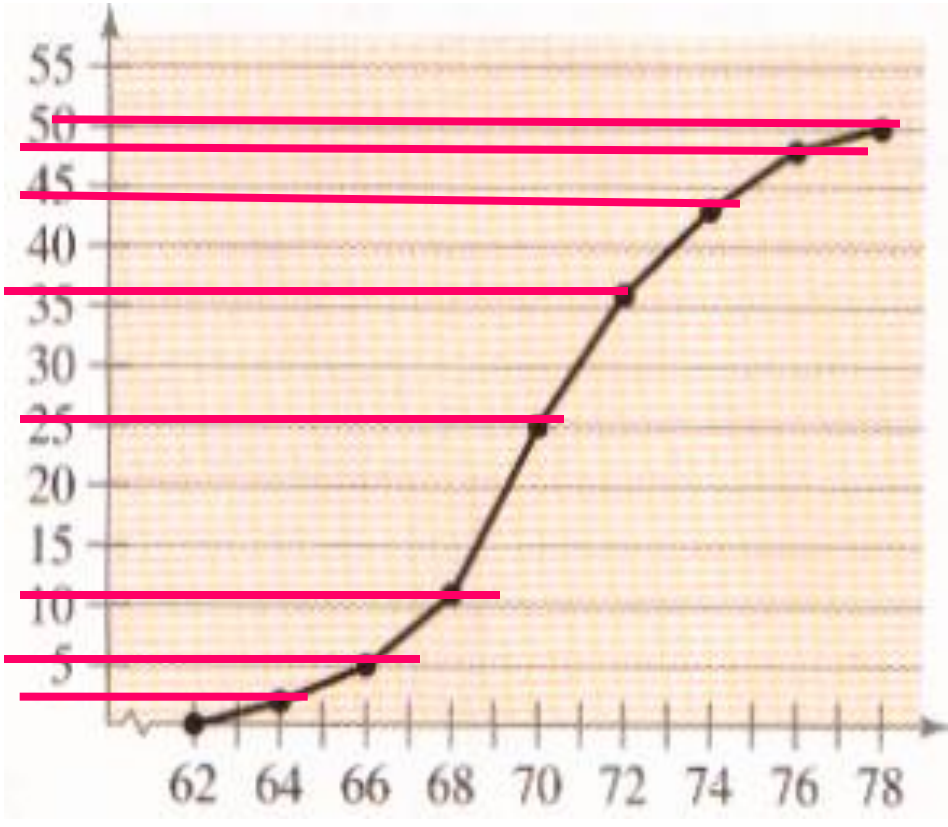
1. Name this plot.
2. What does the vertical axis represent?
3. What does the horizontal axis represent?
4. Determine the type of data.
5. Determine the class width.
6. Estimate frequencies
7. Construct the frequency table corresponding to the plot



Class Interval	Mid-points	frequency
15.5-20.5	18	130
20.5-25.5	23	140
25.5-30.5	28	900
30.5-35.5	33	200
35.5-40.5	38	790
40.5-45.5	43	540
45.5-50.5	48	320



Lower class boundaries	A.C.f
less than 62	0
less than 64	3
less than 66	5
less than 68	10
less than 70	25
less than 72	36
less than 74	44
less than 76	48
less than 78	50



Example (6):

1. **Use the steam-and-leaf plot to list the actual data entries.**
2. **What is the maximum data entry?**
3. **What is the minimum data entry?**
4. **What is the range?**

27	32	41	43	43
44	47	47	48	50
51	51	52	53	53
53	54	54	54	54
55	56	56	58	59
68	68	68	73	78
78	85			

Key: 2|7 = 27

2	7
3	2
4	1 3 3 4 7 7 8
5	0 1 1 2 3 3 3 4 4 4 4 5 6 6 8 9
6	8 8 8
7	3 8 8
8	5

The representation of qualitative data

Line chart

Bar chart

Pie cart

Example(7):
from The below table shows the number of high schools in KSU 1395/1396 to 1400/1401 :

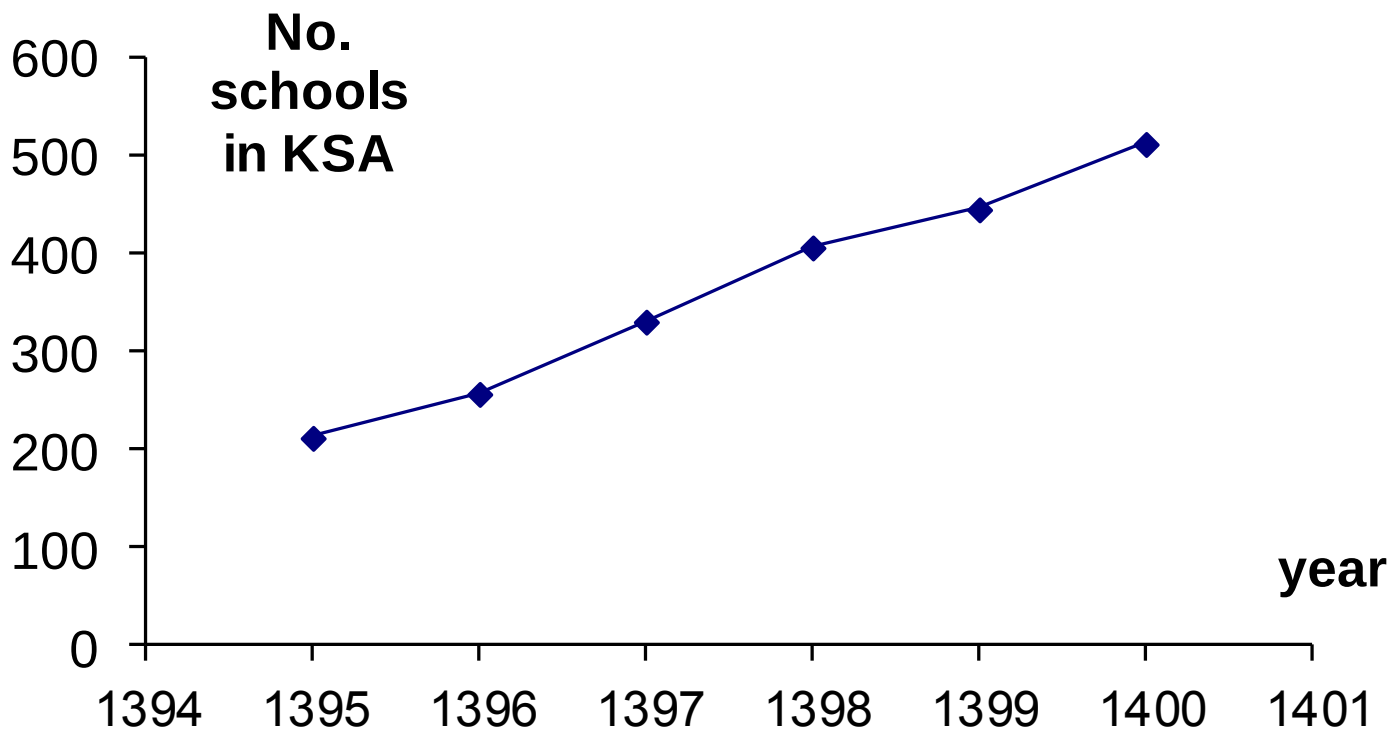
year	1395/96	1396/97	1397/98	1398/99	1399/1400	1400/1401
Number of school	212	257	331	407	46	513

Represent the table in a suitable chart

Firstly:

Line Chart

Year	1395/96	1396/97	1397/98	1398/99	1399/1400	1400/1401
No. School	212	257	331	407	446	513

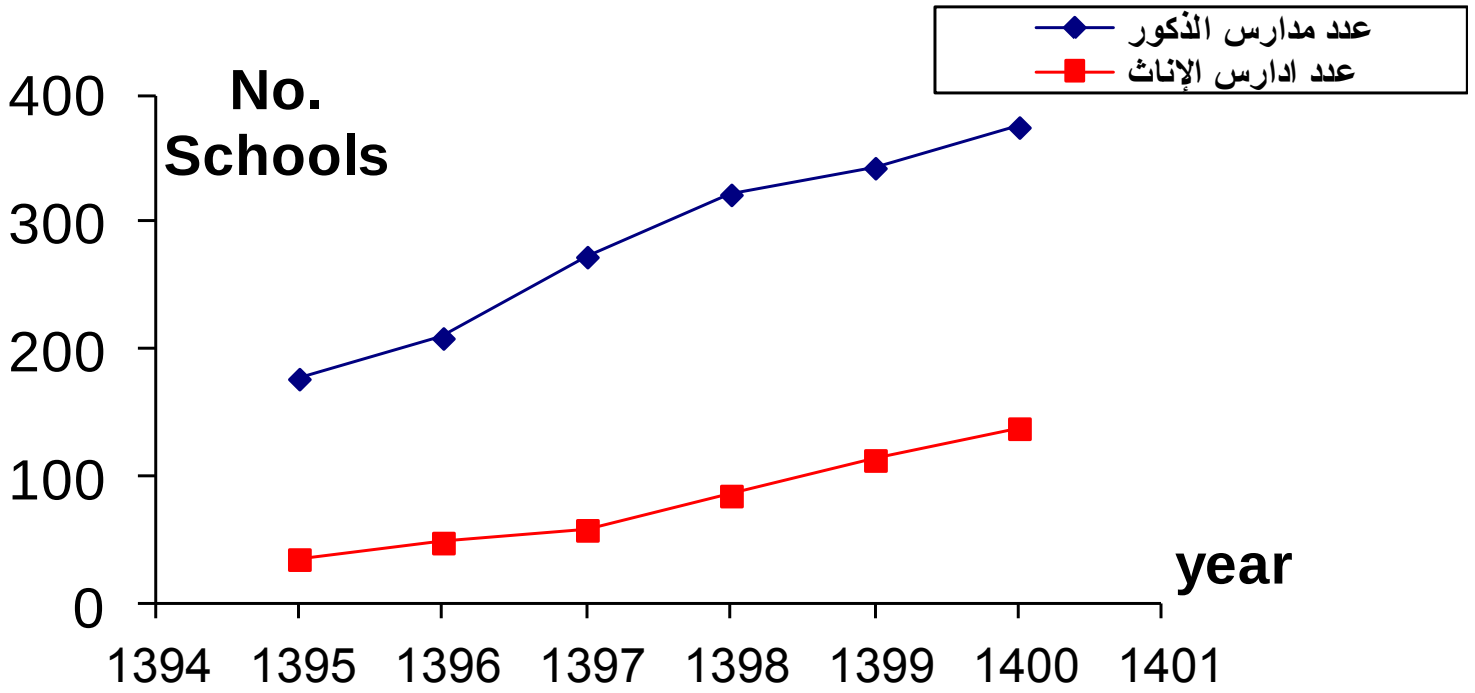


Example(8):
The following table shows the No. of schools in KSA for both genders from 1395/1396 to 1400/1401:

year	1395/96	1396/97	1397/98	1398/99	1399/1400	1400/1401
No. M Schools	177	209	273	322	343	375
No. F Schools	35	48	58	85	113	138

Represent the table in a suitable chart

year	1395/96	1396/97	1397/98	1398/99	1399/1400	1400/1401
No. M schools	177	209	273	322	343	375
No. F schools	35	48	58	85	113	138

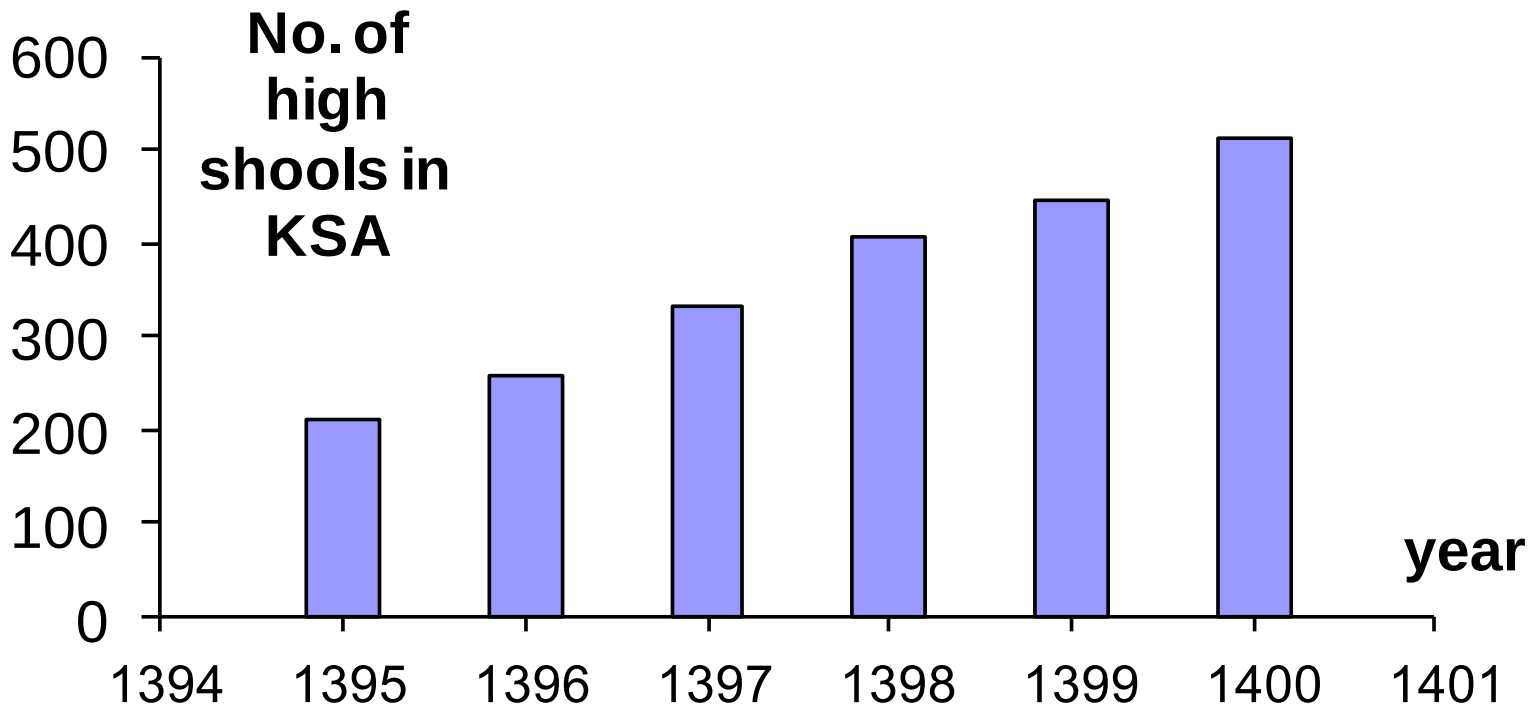


Secondly:

Bar chart

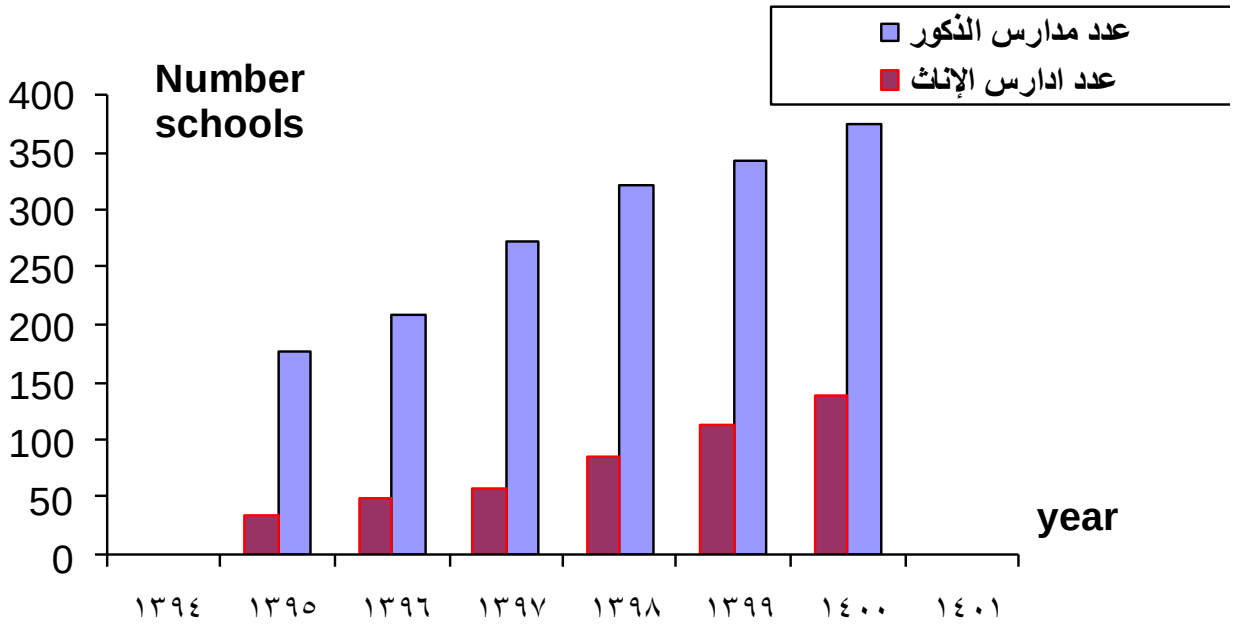
Simple bar chart

year	1395/96	1396/97	1397/98	1398/99	1399/1400	1400/1401
No. Schools	212	257	331	407	46	513



Cluster charts

year	1395/96	1396/97	1397/98	1398/99	1399/1400	1400/1401
No. M schools	177	209	273	322	343	375
No. F schools	35	48	58	85	113	138



Third

Pie charts

Central Angle=

$$\frac{\text{frequency} \times 360}{\text{total of frequencies}}$$

Example (9):

The following table shows the area of continents to be represented by Pie charts

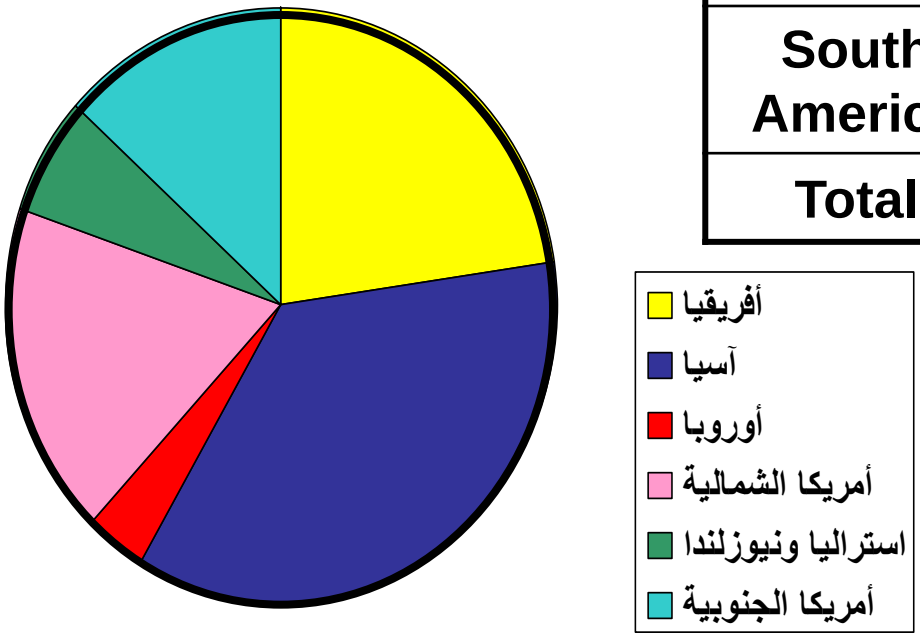
continent	Area (m^2)
Africa	30.3
Asia	47.4
Europe	4.9
North America	24.3
Australia	8.5
South America	17.9

continent	Area (m^2)	Central Angle
Africa	30.3	$81.83 \approx 82$
Asia	47.4	$128.01 \approx 128$
Europe	4.9	$13.23 \approx 13$
North America	24.3	$65.63 \approx 66$
Australia	8.5	$22.96 \approx 23$
South America	17.9	$48.34 \approx 48$
Total	133.3	**360**

$$\frac{30.3}{133.3} \times 360$$

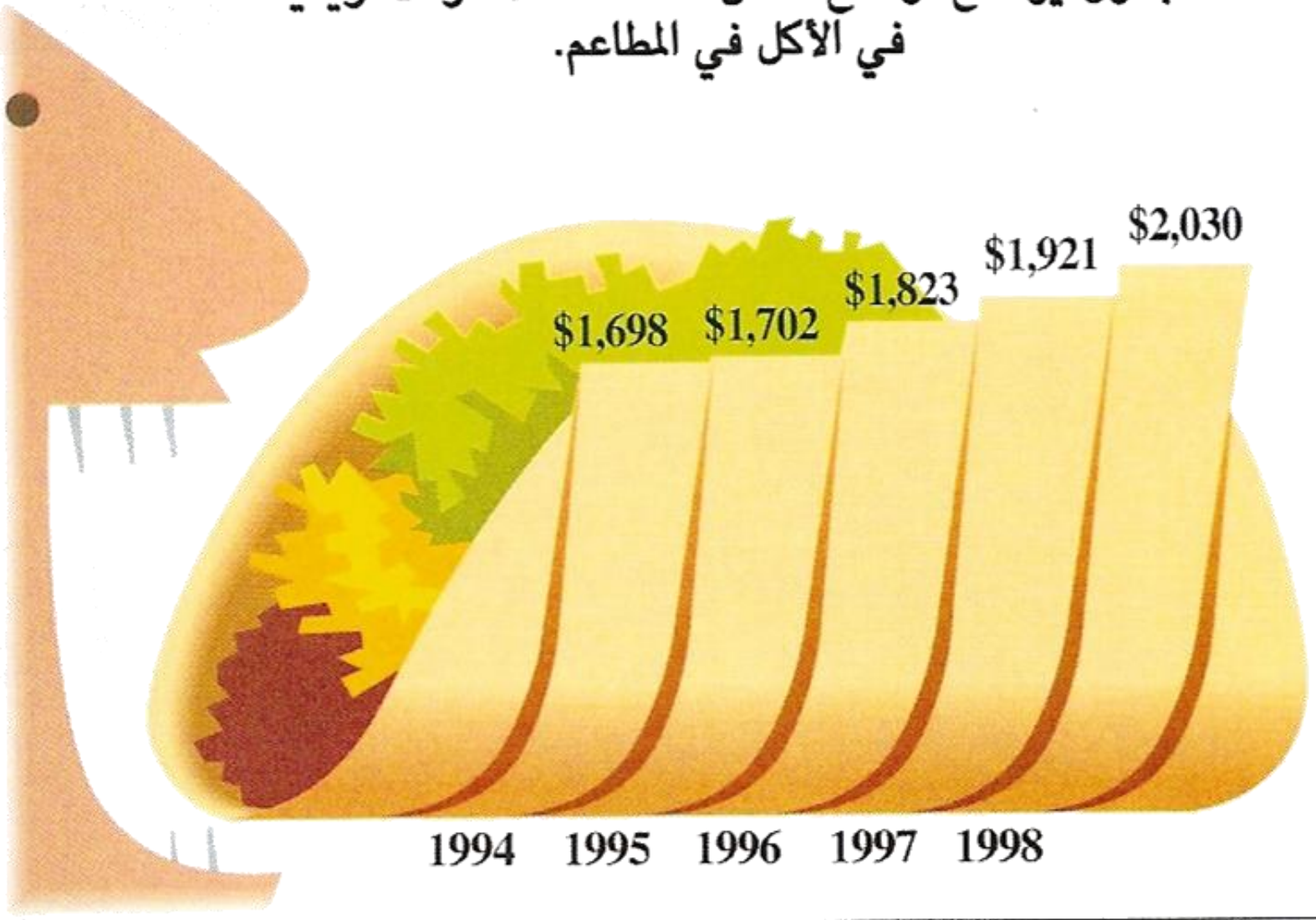
$$\frac{47.4}{133.3} \times 360$$

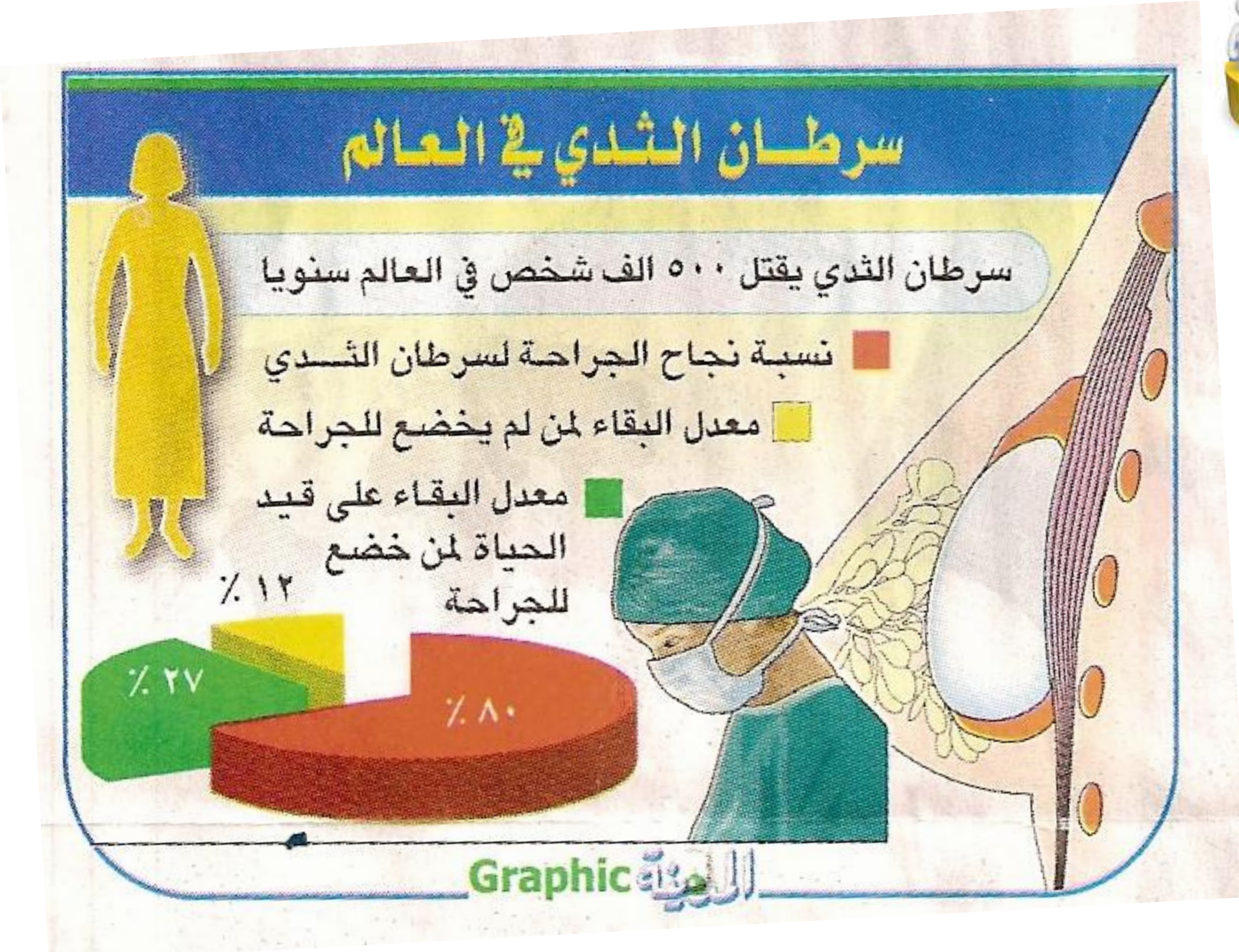
continent	Area (m^2)	Central Angle
Africa	30.3	82
Asia	47.4	128
Europe	4.9	13
North America	24.3	66
Australia	8.5	23
South America	17.9	48
Total	133.3	360



Realistic studies

جدول يوضح ارتفاع معدل ما أنفقته الأسر الأمريكية في الأكل في المطاعم.




سرطـان الثدي في العالم
سرطان الثدي يقتل ٥٠٠ الف شخص في العالم سنويا
نسبة نجاح الجراحة لسرطان الثـدي
معدل البقاء لمن لم يخضع للجراحة
معدل البقاء على قيد الحياة لمن خضع للجراحة
٪ ١٢
٪ ٢٧
٪ ٨٠
Graphic

الطلاق في المجتمع السعودي

نسب من حالات الطلاق

- يتم الطلاق قبل ثلاث سنوات من الزواج
- يرفضن العودة إلى أزواجهن

أسباب وقوع الطلاق

- خُلق الزوج
- سوء تقدير الحياة الزوجية
- العلاقات غير المشروعة

AbuNawaf.com


أكثر الرياضات نفعا
٦٠٪ لا يمارسون النشاط البدني الكافي.
٥٠٪ يمارسون أنواع الرياضة الأجدى نفعاً والأرخص.
٣٠٪ يفضلون رياضة المشي
٠ ١٠ ٢٠ ٣٠ ٤٠ ٥٠ ٦٠
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- **A frequency histogram**
- **A frequency polygon**
- **A frequency curve**
- **steam -and –leaf plot**
- **A bar chart**
- **A line chart**
- **A pie chart**

Summarization